

crane or chain hoist capable of handling at least a ten-ton load, and there should be a couple of A-frame hoists of varying capacities.

8. There should be a space partitioned off for the storage of spare parts and accessories. Truck and tractor parts which may be bought locally need not be stocked, but not many of us are so fortunately situated and have to buy from supply stations some distance away. Do not be afraid to buy, within reason, of course, a large supply of the parts which require frequent replacement. If you fail to use them, some one in later years will find them useful, and the cost of a few extras is slight.

9. Gasoline, oil, and tires should be kept under separate lock. Gasoline, particularly, has a high evaporation percentage when not securely housed.

10. Battery recharging and repair equipment will pay dividends.

11. The installation of an oil filter will be a source of saving. The use of filtered crank case oil is becoming quite general, and is accepted as safe economy. I would suggest, however, that you take the trouble to consult an authority before installing the necessary devices.

It is well to have a day each week, preferably towards the end of the week, upon which trucks shall be cleaned and greased, and the oil changed. The small amount of time needed for this operation is unimportant, and the strict observance of this requirement will shortly become a matter of habit, and will likely become the largest single factor in keeping the equipment on the road in condition.

I favor a sort of military precision in the parking of trucks, tractors, and other rolling stock, when this equipment is put under cover. A couple of dozen trucks properly aligned in the garage at night is an inspiring sight. This simple device should foster a desire for neatness, despatch, and workmanship in your men, and perhaps in yourself as well, and will surely be a means of conserving space.

OFFICE HELP NEEDED FOR ADEQUATE RECORDS

C. G. Berry, Office Deputy,

Marion County Surveyor and Road Supervisor's Office,
Indianapolis

The keeping of records in the county road department is a very important operation and utmost care should be exercised in its handling.

From the state gasoline and license fee fund we get a sum of money to maintain our roads and bridges. This amount is determined by the population and mileage of our several counties, and quite some time ahead we know approximately

the amount that we are going to get. We make a budget of our anticipated expenditures about six months before we actually make the expenditures. It is very important that we stay within our budget. Therefore, I deem it necessary that we have a watch dog, so to speak, so that we may know at all times just where we stand and not have to wait until our county auditor can get us the information regarding our standing in the various appropriations.

The county auditor has many accounts to keep track of, and it is to be expected that he will not keep as detailed a report as we would like to have.

There should be someone to keep a record of what requisitions have been issued, to whom and for what. He should keep track of all moneys expended in the county road department. Also, he should know on what roads metal was placed, from whom purchased, and by whom hauled. When material is delivered, he should get a signed delivery ticket. When the claim is filed, this delivery ticket is necessary as a check on this claim. Gasoline and oil should be kept track of, where culvert pipe was placed should be recorded, and so on.

MARION COUNTY PRACTICE

In Marion County, some forty different appropriations make up our road fund. When we buy something, we issue a requisition to the person from whom we purchase, showing the material purchased and the amounts expended. This requisition is entered at once in a ledger showing the date, to whom it is issued, the order number, and the amount of the purchase. The amount expended is deducted immediately from the previous balance so that at all times the amount of money left in that particular appropriation is visible. Whenever anything is delivered, we require a delivery slip; and when the claim is checked up, these delivery slips are attached to the invoice and claim before payment is authorized. Before anything is purchased, a requisition is issued, or the invoice, or claim, is not allowed. We have a county yard from which the major portion of our work is allotted and where all trucks and equipment are maintained.

We also have 11 district men who have a tractor and maintainer each, whose duty is to maintain the roads in their several districts. We have daily report cards that are mailed in each day from district men showing roads worked on, gasoline and oil consumed, miles traveled with tractor and maintainer, and men who worked and what they did.

At the end of the month the district men's payrolls are checked from these cards. Each district man has a time and record book in which he keeps all his records until time to turn them into the office.

We have a daily yard report which shows materials received, gasoline and oil used by each piece of equipment, and a time report showing the man's name, what he did, and the number of hours he worked. From this sheet, the yard payroll is made. In addition, a tractor report is turned in by district men showing number of miles traveled in maintaining roads, and the gasoline and oil consumed by them for the month. From these reports one can determine what any one person did any day during the month.

When claims or invoices for material furnished are filed by firms, they all come to us to be O.K'd before they are allowed by the county commissioners. These claims are all checked with the delivery tickets and, if found to be correct, are O.K'd by the supervisor. Then, opposite the entry of the requisition in the ledger, the date is stamped showing the date the claim was filed for approval of the county commissioners.

Often one wants to know how much gravel or cement he has purchased from a certain person, and in his ledger he has this at his fingertips. If he depends upon the county auditor for this, he will probably be disappointed, as his county auditor posts his books only by voucher number and amount, so that one will have to look up several claims before he gets the information he is seeking.

Above all, let me impress upon your minds that to keep these records that are so necessary, it is very essential that you have adequate, competent clerical help.

OIL MATS

Ivan Craggs,
Johnson County Road Supervisor,
Franklin

In our county no attempt was made in the past to provide plans and specifications for construction of bituminous-surfaced roads. Each road superintendent carried out his own ideas, and the contractor did the best he could with whatever kind of material was furnished.

We have in Johnson County approximately 60 miles of oil mat, 50 miles of which were constructed by scarifying the old gravel road to a depth of 2 inches, and putting this loose material into a windrow on either side of the road. Approximately 0.3 gallons per square yard of A-50 or A-60 road oil was applied to the roadbed as a primer. The loose material was again placed over the road, and to this was added approximately 0.7 gallons per square yard of A-70 oil. It was mixed and graded, spread evenly, and rolled to produce a mat 1½ inches thick.

On account of the many kinds of material used in the old road, hardly any two sections were the same. The cost of